



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,693	07/28/2003	Luc Struye	27500-169	5166

7590 09/08/2005

Joseph T. Guy Ph.D.  
Nexsen Pruet Jacobs & Pollard LLP  
201 W. McBee Avenue  
Greenville, SC 29603

EXAMINER

SUNG, CHRISTINE

ART UNIT PAPER NUMBER

2878

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/628,693	<b>Applicant(s)</b> STRUYE ET AL.	
	<b>Examiner</b> Christine Sung	<b>Art Unit</b> 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement filed 7/28/20003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Copies of the "Other Documents" that we cited on the IDS were not provided.

Further copies of references EP 0803554 A1 and EP 01347023 A1 were enclosed but were not cited on the IDS.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 11, 13 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Kano (US Patent 5,012,107 A).

Regarding claim 1, Kano discloses a stimulable phosphor screen or panel (figure 1) comprising a phosphor layer (figure 1, element 2) and a support (figure 1, element 1) characterized in that an intermediate layer arrangement (Figure 1, elements 3 and 4) of an X-ray absorbing foil or light shielding layer (figure 1, element 3) and, farther from the support (see

Art Unit: 2878

figure 1), a stimulated light reflecting foil or light scattering foil (figure 1, element 4) is present between said support and said phosphor layer (see figure 1).

Regarding claim 11, Kano discloses a phosphor screen or panel according to claim 1 (see above), and further discloses that the support is selected from the group consisting of ceramics, glass, metals such as aluminum and polymeric films (column 5, lines 8-23).

Regarding claims 13 and 15, Kano discloses a phosphor screen or panel according to claims 1 and 11, respectively (see above), wherein said intermediate layer arrangement has a surface that has been subjected to embossing for forming a fine concavo-convex pattern (column 7, lines 35-37).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 2878

6. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano (US Patent 5,012,107 A) in view of Miura (US Pre Grant Publication 2003/0021387 A1).

Regarding claims 2-4, Kano discloses the limitations set forth in claim 1, and further discloses that the x-ray absorbing layer or light shielding layer is made of metals that absorb and prevent transmission of the stimulating light (column 5, lines 51-54 and column 6, lines 3-11). Kano does not specify that the material is a lead compound in a binder. Miura discloses an x-ray absorbing layer that is made of a leaded glass, where the x-ray absorbing material is embedded in a glass matrix. One of ordinary skill in the art would be motivated to use the leaded glass layer as disclosed by Miura with the invention as disclosed by Kano in order to efficiently stop the transmission of stimulation radiation from escaping the stimutable phosphor panel.

Regarding claim 5, Kano discloses the limitations set forth in claim 1, and further discloses that the x-ray absorbing layer or light shielding layer is made of metals that absorb and prevent transmission of the stimulating light (column 5, lines 51-54 and column 6, lines 3-11). Kano does not specify that the material is a layer of lead, however Miura discloses an x-ray absorbing layer that is made of lead (page 3, paragraph 31). One of ordinary skill in the art would be motivated to use the lead x-ray absorbing layer as disclosed by Miura with the invention as disclosed by Kano in order to efficiently stop the transmission of stimulation radiation from escaping the stimutable phosphor panel.

7. Claims 6, 12, 14, 16, 18, 20, 22, 24, 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano (US Patent 5,012,107 A) in view of Isoda (US Patent 6,387,297 B1).

Regarding claim 6, Kano discloses a stimuable phosphor screen or panel according to claim 14 (see above), and Kano further discloses that the light reflecting material is made from a material that reflects stimulating light (column 6, lines 39-46). Kano does not specify that the light-reflecting layer is made of aluminum. However, light reflecting layers made of aluminum are well known in the art as disclosed by Isoda (Column 3, lines 50-52). Aluminum provides a means for efficiently reflecting light, which increases the light collecting efficiency of the stimuable phosphor panel. One of ordinary skill in the art would be motivated to use the aluminum layer as disclosed by Isoda with the invention as disclosed by Kano in order to efficiently collect stimulated and emitted light.

Regarding claim 12, Kano in view of Isoda discloses a phosphor screen or panel according to claim 6 (see above), and Kano further discloses that the support is selected from the group consisting of ceramics, glass, metals such as aluminum and polymeric films (column 5, lines 8-23).

Regarding claims 14 and 16, Kano in view of Isoda discloses a phosphor screen or panel according to claims 6 and 12, respectively (see above), and Kano wherein said intermediate layer arrangement has a surface that has been subjected to embossing for forming a fine concavo-convex pattern (column 7, lines 35-37).

Regarding claims 18, 20, 22, 24, 26 and 28, Kano in view of Isoda discloses the limitations set forth in claims 6 and 12, and Kano further discloses a two or more protective layers (column 8, lines 22-27). Although he does not specify the exact positioning of the layer as disclosed in the instant claims, it would have obvious to one having ordinary skill in the art to have used a protective layer between the substrate and intermediate layers and/or between the

Art Unit: 2878

phosphor and the intermediate layers in order to decrease the likelihood of damage from moisture exposure to the various layers of the detector.

8. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano (US Patent 5,012,107 A) in view of Miura (US Pre Grant Publication 2003/0021387 A1) further in view of Isoda (US Patent 6,387,297 B1).

Regarding claims 7-10, Kano in view of Miura discloses a stimuable phosphor screen or panel according to claims 2, 3, 4 and 5, respectively (see above), and Kano further discloses that the light reflecting material is made from a material that reflects stimulating light (column 6, lines 39-46). Kano in view of Miura does not specify that the light-reflecting layer is made of aluminum. However, light reflecting layers made of aluminum are well known in the art as disclosed by Isoda (Column 3, lines 50-52). Aluminum provides a means for efficiently reflecting light, which increases the light collecting efficiency of the stimuable phosphor panel. One of ordinary skill in the art would be motivated to use the aluminum layer as disclosed by Isoda with the invention as disclosed by Kano in view of Miura in order to efficiently collect stimulated and emitted light.

9. Claims 17, 19, 21, 23, 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano (US Patent 5,012,107 A).

Regarding claims 17, 19, 21, 23, 25 and 27, Kano discloses the limitations set forth in claims 1 and 11, and further discloses a two or more protective layers (column 8, lines 22-27). Although he does not specify the exact positioning of the layer as disclosed in the instant claims, it would have obvious to one having ordinary skill in the art to have used a protective layer between the substrate and intermediate layers and/or between the phosphor and the intermediate

Art Unit: 2878

layers in order to decrease the likelihood of damage from moisture exposure to the various layers of the detector.

10. Claims 29, 31, 33, 35, 37, 39, 41 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano (US Patent 5,012,107 A) in view of Homme (US Pre Grant Publication 2004/0000644 A1).

Regarding claims 29 and 31, Kano discloses the limitations set forth in claim 1 and 11, respectively, but does not specify that the phosphor is a binderless phosphor having needle shaped crystals. Homme discloses a radiation detection panel with a stimuable phosphor that has needle shaped crystals (figure 5, element 10a). One of ordinary skill in the art would be motivated, at the time the invention was made to have used the needle shaped crystals as disclosed by Homme with the invention as disclosed by Kano in order to reduce lateral spreading of the detected radiation and thereby increase the efficiency and accuracy of the detected radiation.

Regarding claim 33, 35, 37, 39, 41 and 43 Homme further discloses that the needle shaped phosphor crystals are made of an alkali metal phosphor, CsBr:Eu (Page 4, paragraph 49).

11. Claims 30, 32, 34, 36, 38, 40, 42 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano (US Patent 5,012,107 A) in view of Homme (US Pre Grant Publication 2004/0000644 A1).

Regarding claims 30 and 32, Kano discloses the limitations set forth in claims 6 and 12, respectively, but does not specify that the phosphor is a binderless phosphor having needle shaped crystals. Homme discloses a radiation detection panel with a stimuable phosphor that has needle shaped crystals (figure 5, element 10a). One of ordinary skill in the art would be



Art Unit: 2878

motivated, at the time the invention was made to have used the needle shaped crystals as disclosed by Homme with the invention as disclosed by Kano in order to reduce lateral spreading of the detected radiation and thereby increase the efficiency and accuracy of the detected radiation.

Regarding claim 34, 36, 38, 40, 42 and 44, Homme further discloses that the needle shaped phosphor crystals are made of an alkali metal phosphor, CsBr:Eu (Page 4, paragraph 49).

### ***Conclusion***

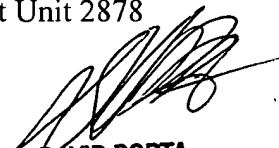
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Sung whose telephone number is 571-272-2448. The examiner can normally be reached on Monday- Friday 7-3 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CS

Christine Sung  
Examiner  
Art Unit 2878



**DAVID PORTA**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**